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WEST VIRGINIA

AGRICULTURAL EXPERIMENT STATION,

MORGANTOWN, W. VA.

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BULLETIN 53.

DECEMBER 31, 1898.

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# Commercial Fertilizers.

BY J. H. STEWART AND B. H. HITE.

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1899.

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## COMMERCIAL FERTILIZERS.

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This Bulletin contains a complete report of the work required of the Director of the Experiment Station by the Fertilizer Law of this State.

A Bulletin of a more general character devoted to the sources, composition, uses, etc., of Fertilizers will be issued during the current year.

During the year 1898 three hundred and forty-three samples of Commercial Fertilizers have been analyzed in accordance with the fertilizer law of this State as follows:.

Samples submitted by manufacturers	
(Official samples).....	186
Official Samples, rejected .....	8
Inspector's samples .....	143
Samples submitted by farmers.....	6
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Total .....	343

The analyses of the inspector's samples are given in Table III., the analyses of the official samples in Table II.

The 186 brands registered during 1898 may be classified as follows:

Acid Phosphates .....	49
Acid Phosphates with Potash .....	30
Complete Fertilizers.....	81
Ground Bone .....	18
Miscellaneous .....	8
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Total .....	186

From this it will be seen that of the brands registered in this State during 1898, about 26% were acid phosphates, 44% complete fertilizers, etc., but these figures give no idea as to the rel-

ative amounts of the various fertilizers actually sold in the State. The quantity and value of the different classes of fertilizers sold in the State during 1898 and, (for the sake of comparison) for the three years preceeding are given in Table I.

TABLE I.

CLASS.	1895.				1896.			
	No of Tons Sold.	Part of Total Sales,	Values.	Average price per ton.	No. of Tons Sold.	Part of Total Sales,	Values.	Average price per ton.
Acid Phosphates..	11,252	52.19 per cent.	\$176,826	\$15.72	12,447	43.77 per ct.	\$199,148	\$16.00
Acid Phosphates with Potash ...	1,400	6.49 per cent.	25,238	18.03	2,598	9.14 per ct.	45,845	17.65
Complete.....	6,782	31.46 per cent.	165,842	24.45	10,083	35.46 per ct.	235,528	23.36
Ground Bone....	1,315	6.10 per cent.	37,891	28.81	2,675	9.41 per ct.	77,509	28.98
Miscellaneous ....	810	3.76 per eent.	13,808	17.05	630	2.22 per ct.	16,635	26.40
Total.....	21,559	100.00 per cent.	\$419,605	\$19.46	28,433	100.00 per ct.	\$574,665	\$20.21

TABLE I—CONTINUED.

CLASS.	1897.				1898.			
	No. of Tons Sold.	Part of Total Sales,	Values.	Average price per ton.	No. of Tons Sold.	Part of Total Sales,	Values.	Average price per ton.
Acid Phosphates ...	13,723	50.40 per ct.	\$221,809	\$16.16	15,169	47.71 per ct.	\$241,201	\$15.91
Acid Phosphates with Potash .....	2,863	10.51 per ct.	49,503	17.29	3,893	12.24 per ct.	66,988	17.21
Complete.....	8,097	29.73 per ct.	194,439	24.01	10,443	32.85 per ct.	242,567	23.23
Ground Bones.....	1,418	5.21 per ct.	39,121	27.58	1,395	4.39 per ct.	38,760	27.78
Miscellaneous .....	1,130	4.15 per ct.	27,293	24.15	892	2.81 per ct.	17,415	19.52
Total.....	27,231	100.00 per ct.	\$532,165	\$19.54	31,792	100.00 per ct.	\$606,931	\$19.09

The data in the above table is obtained from the sale of tags, and it should be remembered that hundreds of tons of fertiliz-

zers are shipped into the State every year without tags, such goods being shipped directly from the manufacturers to the farmers, so the sales indicated by the table are probably far short of the actual sales in almost every case. The sales as given in the table for '98 are doubtless very much too low for the following reason. Until 1897 it had been customary for manufacturers to use old tags so long as they had any of them on hand. The sales in '96 were so much heavier than in any previous year that many manufacturers laid in a large supply of tags for '97, and the sales for '97 being so much lighter (on account of severe drouth) a great many tags were left over. Many of these were used on '98 goods in spite of positive instructions to the contrary. For the information of manufacturers and dealers, let it be understood, that to use one year's tags on the next year's goods is the very plainest imaginable violation of the Act Concerning Commercial Fertilizers, and that fertilizers so tagged will not hereafter be regarded as tagged within the meaning of this Act.

Especial attention is called to Section 8 of Act Concerning Commercial Fertilizers which authorizes the Director of the Station to prescribe and enforce such rules and regulations as he may deem necessary to carry fully into effect the true intent and meaning of this Act.

Table I shows:

(1) That the sales for 1898 were much heavier than for any previous year, and in view of the facts mentioned above we are confident that these sales really amounted to over \$800,000.00.

(2) That the sales of acid Phosphates has steadily increased though not always in proportion to the total sales of all classes of goods in any year, and;

(3) That just the reverse of the above is true in regard to acid phosphates with potash, for while the sales of these goods from year to year vary considerably, their part of the total sales of all classes of goods has steadily increased.

(4) That the sale of complete fertilizers has varied, falling

off markedly in '97, but being greater in '98 than in any previous year.

(5) That ground bone, and assidulated bones (which constitute the greater part of the "miscellaneous" goods,) seem to be losing ground.

(6) That the composition of the average acid phosphate has not varied enough in the last four years to make a difference of more than about fifty cents in value. (All values in the above table are calculated on the same basis.)

(7) The composition of the average acid phosphate with potash was a little lower in '98 than in previous years having decreased steadily by a few cents each year since '95.

(8) That the composition of the average complete fertilizer has varied enough during the last four years to make a difference in value of about \$1.25.

(9) That the average ground bone in '98 was worth about a dollar less; the averaged assidulated bone, about \$2.50 more than in '95.

(10) That the average commercial fertilizer during the last four years has not varied more than about a dollar in value, being 35 cents lower in '98 than in '95.

Table II—Contains the analyses and valuations of all brands submitted by manufacturers during the year 1898 together with the manufacturers minimum Guaranteed Analyses and the Stations valuations calculated from these guaranteed analyses. These analyses are arranged in parallel columns in order that they may be more readily compared.

It will be observed that the official samples are well "up to guarantee," the great majority of them being far above the minimum guarantee. It should be remembered that the manufacturer, is just as much responsible for his official sample as he is for his guaranteed analysis: both being submitted under oath. It is just as wide a breach of good faith to submit an unfair official sample as an unfair guarantee. In view of this fact there can be no good reason for placing the minimum guaranteed analysis as far below the composition of the official sam-

ple as is the case with some brands, and extraordinary pains to find samples of such brands on sale in this State, will always be taken.

The analyses of the samples found on sale in the State are given in table III. These samples were all taken by the agents of the Director of the Station, except the very few marked with a star (\*), which were taken by farmers in the presence of witnesses and duly certified in accordance with careful instructions. The names of the fertilizer agents from whom the samples were taken are given at the foot of the table. In order that the composition of the goods found in the State may be more readily compared with that of the samples submitted by the manufacturers, the analysis of the two are placed in parallel columns. The valuations are, of course all calculated on the same basis.

Particular attention is called to the last column in this table. It contains the difference between the value of the sample submitted by the manufacturer and the sample found on sale in the State. These figures need no comment. They tell their own story.

It should be remembered that even in fertilizers that are reasonably well mixed the composition may be expected to vary enough to make a difference of about a dollar in the value. It is also only reasonable to expect that in such cases there will be about as many samples running above the official sample as are found to fall below it, but when almost every sample of a particular firm, that can be found in the State falls short, some of them six to ten dollars short, we can find but one conclusion and we earnestly caution farmers against investing their money in such brands. There are too many firms that are doing a perfectly honorable and upright business in this State to make it necessary for any farmer to take chances with a concern that may be disposed to do any other sort of business. Such a shortage is indefensible, and manufacturers who persist in such practices will be excluded from the State under the provisions of the fertilizer law.

Last year the results of the inspection work were so satisfac-

tory, that we were beginning to hope that troubles of this sort were practically settled for good. The average sample found on sale last year was a few cents better than the samples submitted by the manufacturers which was even better than could have been asked.

This year the average sample found on sale falls about one dollar short of the samples submitted by the manufacturers. As will be seen from the table, (table III.) three or four firms are very largely responsible for this extraordinary shortage, and we advise farmers to examine this table very carefully before selecting their fertilizers for next year, and in case they see fit to invest in those brands that fell so far below this year, that they either take and send a sample of the fertilizers in accordance with the Stations instructions or that they inform the Director of the Station when shipments of these brands are due in their section, so that an agent may be on hand to sample them.

In our last annual report on the work on commercial fertilizers, (page 70,) we had the following to say in regard to a "So called Natural Plant Food.", manufactured by the American Fertilizer Co., of Washington, D. C.

#### "VIOLATIONS OF THE FERTILIZER LAW."

Year after year the manufacturing establishments whose names are so familiar to the farmers of this State have been complying with our fertilizer law. Most of them, we believe, have been making a reasonable effort to carry out not only the letter, but also the spirit of the law, and to their credit it should be said, have seemed to court rather than to try to avoid the rigid examination of their goods which the law requires. It occasionally happens, however, that a manufacturer (for reasons that the people, through their representatives doubtless had in mind when the law was framed,) decides that he does not care to have his fertilizers subjected to such an examination, and so tries to devise some scheme to dodge the law. One would think that any effort to dodge such examination would be sufficient of itself to arouse suspicion, and it seems that this is true in this State.

The American Fertilizer Co., of Washington, D. C., has been endeavoring to induce the farmers of this State to buy their "Natural Plant Food" without having it examined at the Station. They have spent many times the ten dollars that would have been required to register the goods in trying to convince farmers that such registration is unnecessary. Posters and truly excellent letters for the purpose have been scattered all over the State, but be it said to the credit of the farmers of this State that we have not been able to find a single sack of it, though we have hunted all over the State for it. West Virginia seems to be lacking in the class of farmers who can be duped in this way, and in this connection it is interesting to note that this company tries to make great capital of the statement (certainly not of the fact,) that their goods contain "no chemicals." Indeed they have worked this old prejudice for all it is worth, but it seems that the farmers of this State know (whether these manufacturers do or not,) that plant food consists entirely of "Chemicals," and that a supposed plant food, whether "natural" or of any other sort that contains "no chemicals" must be pretty light diet.

"This company claims to enjoy immunity from the operations of the statutes of West Virginia concerning commercial fertilizers by virtue of certain interstate commerce regulations. This position is simply untenable, and those who may be induced to act as dealers or agents, for this or any other unregistered brand of fertilizers, will lay themselves liable to prosecutions according to the provisions of the aforesaid Act."

Inasmuch as we had not been able at that time to find any of this material on sale in this State we hoped the above would be sufficient. It seems however that in spite of our word of warning, this company has succeeded in shipping several car loads of this stuff into the State during this year. Those who have already invested in it will need no further warning, but in order to save others the disappointment that will certainly follow if they put their money into this stuff we will add to what we have already said, that judging by the reports of those connected with fertilizer controls in other states, the

letters we have received from those who have used it in this State, and the analyses of all the samples we have been able to find in this State, we regard this stuff at anything like the price usually asked for it as a plain swindle.

It is nothing more nor less than insoluble phosphate rock ground up and mixed with some New Jersey "green sand," no part of the mixture being treated in any way to render available anything that might be contained in it.

As has been explained in a number of fertilizer bulletins from this Station, the phosphoric acid in phosphate rock is all insoluble. In order to render it available manufacturers of standard goods grind up the rock and treat it with a strong acid, (Sulphuric Acid,) when it becomes the "Acid Phosphate," Dis. S. C. Phosphate, Dis. Bone Phosphate, etc., of commerce. No manufacturer worthy of the name would think of claiming any agricultural value for the untreated rock although they all have large quantities of it on hand; and the treatment with the acid is a very expensive process.

Again the rock used in the samples of "Natural Plant Food" analyzed at the Station was either mixed with a good deal of "green sand" (or some other material,) or it was a very poor stuff even as a raw material from which to make a decent acid phosphate, indeed if it had been treated in the usual way, (with sulphuric acid, in order to render available the little phosphoric acid it did contain,) it would not have been worth more than about \$6 per ton.

As for the potash which the "Natural Plant Food Co." claims is derived from the mineral Glauconite or "green sand" of New Jersey, we would say that Glauconite does contain potash, and we might add, so does granite, and there is no reason for believing that the potash in the one is any more readily available than in the other.

The following is the average analysis of the samples analyzed at the Station, and this is the way it would "show up" if its manufacturers dared to let it appear among registered fertilizers.

Insoluble Phos. Acid.....	15.70%
Citrate Soluble Phos. Acid.....	1.31%
Water Soluble Phos. Acid.....	none.
Available Potash.....	none.
Nitrogen.....	none.

Value about \$2.00 per ton f. o. b. cars in Charleston, S. C.

No wonder its manufacturers prefer trying to dodge the law, even though such a course does leave all their agents in this State liable to prosecution.

In this connection it should not be overlooked that the parties who are manipulating this enterprise are not citizens of W. Va. and so are beyond the reach of the processes of our courts, and that any prosecutions that may follow will fall upon those among us who indiscreetly act as their agents or dealers.

We repeat that all parties who may be induced to act as agents or dealers for this or any other unregistered brand of fertilizers, will be reported to the prosecuting attorney of the county in which the offense is committed.

TABLE II.

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	SOLUBLE PHOSPHORIC ACID IN OFFICIAL SAMPLE.									
		GRANULED.					LIQUID.				
Baugh & Sons Co., Baltimore, Md. . .	H. G. Acid Pho. or Dis. S.C.R. 12.69	2.28	....	1.20	....	16.17	....	14.97	14.00	....	....
Baltimore Guano Co., Baltimore, Md. Dissolved Bone Phosphate . . . . .	11.02 8.00 4.11 5.00	1.20	2.00	16.33	15.00	13.13	13.00	1.25	1.25	16.25	15.00
B.G. Ammoniated Bone . . . . .	6.49 6.00 1.81 2.00	2.79	2.00	11.09	10.00	8.30	8.00	1.70	1.25	3.10	2.00
Deliance Bone . . . . .	10.00 8.00 2.50 3.00	.53	2.00	13.03	13.00	12.50	11.00	....	....	3.49	2.00
Baltimore Pulverizing Co., Balt., Md. Farmer's Favorite Fert. . . . .	3.76 . . . . .	2.70	....	.82	....	7.28	....	6.46	5.25	1.17	.82
Penniman's Excelsior Fert. . . . .	4.87 . . . . .	5.31	....	1.94	....	12.14	....	10.20	10.00	....	3.52
Bradley Fert. Co., New York . . . . .	Abattoir Bone Dust . . . . .	7.63 . . . . .	5.00	2.59	3.00	1.40	2.00	11.62	10.00	1.02	2.00
B.D. Sea Fowl Guano . . . . .	8.12 . . . . .	6.00	5.18	5.00	7.01	1.00	11.01	12.00	13.30	11.00	8.00
Alkaline Bone . . . . .	7.00 . . . . .	6.00	3.36	3.00	2.06	2.00	12.42	11.00	10.36	9.00	2.22
Potato Fertilizer . . . . .	6.84 . . . . .	5.00	2.36	3.00	1.65	2.00	10.85	10.00	9.20	8.00	1.01
Dissolved Bone with Potash . . . . .	9.35 . . . . .	10.00	3.74	2.00	.73	1.00	14.02	13.00	13.29	12.00	1.88
Dissolved Bone . . . . .	6.64 . . . . .	5.00	2.17	2.00	1.61	1.00	10.42	8.00	8.81	7.00	1.01
Niagara Phosphate . . . . .	10.79 . . . . .	11.00	3.62	3.00	1.86	.75	16.27	14.75	14.41	14.00	1.82
Soluble Dissolved Bone . . . . .	4.34 . . . . .	7.00	3.89	3.00	1.85	2.00	10.08	8.00	8.23	8.00	1.18
Ohio Valley Phos. (J.A.Zorn) . . . . .	6.43 . . . . .	7.00	4.17	3.00	1.02	2.00	11.62	12.00	11.60	10.00	3.23
Acid Phosphate . . . . .	... . . . .	... . . . .	... . . . .	... . . . .	... . . . .	21.42	21.00	....	....	2.50	2.50
Fine Ground Bone . . . . .	... . . . .	... . . . .	... . . . .	... . . . .	... . . . .	... . . . .	... . . . .	... . . . .	... . . . .	27.50	24.50
Blocker, D., Baltimore, Md. . . . .	Diss. Raw Bone and Potash . . . . .	7.84 . . . . .	8.00	2.38	2.00	.88	2.00	11.10	12.00	10.22	10.00
Dissolved Bone Phos. S. C. . . . .	Dissolved Bone Phos. . . . .	12.13 10.50	3.75	3.50	.56	2.00	16.44	16.00	15.88	14.00	....
Bowker Fert. Co., Boston, Mass. . . . .	Bone Meal . . . . .	6.83 . . . . .	8.00	3.69	2.00	2.79	2.00	13.31	12.00	10.52	10.00
Wheat Grower. . . . .	Diss. Bone Phos. with Potash . . . . .	6.63 . . . . .	8.00	3.91	2.00	2.79	2.00	13.33	12.00	10.54	10.00
Dissolved Bone Phosphate . . . . .	Dissolved Bone Phosphate . . . . .	8.22 . . . . .	8.00	3.85	2.00	2.14	2.00	14.31	12.00	12.07	10.00

\* Below Guaranteed.

Differences between Values.  
Validation of Official Sam-  
ple.  
Potash in Official Sample.  
Nitrogen in Official Sample.  
Potash Guaranteed.  
Validation of Official Sam-  
ple.  
Available Phosphoric Acid  
in Official Sample.  
Available Phosphoric Acid  
Guaranteed.

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Soluble Phosphate Acid in Official Sample.	Soluble Phosphate Acid in Official Sample.	Reverted Phosphate Acid in Official Sample.	Reverted Phosphate Acid in Official Sample.	Insoluble Phosphate Acid in Official Sample.	Insoluble Phosphate Acid in Official Sample.	Total Phosphate Acid in Official Sample.	Total Phosphate Acid in Official Sample.	Available Phosphate Acid in Official Sample.	Available Phosphate Acid in Official Sample.	Nitrogen Guaranteed.	Potash in Official Sample.	Variation of Official Sam-	Difference between Val-		
Bowker Fert. Co., Boston, Mass.	Sure Crop Phosphate.....	6.73	6.00	2.96	2.40	2.20	2.00	11.89	10.00	9.69	8.00	1.05	.75	3.22	2.00	17.25	4.75
"	Harvest Bone .....	8.38	6.00	3.01	2.00	1.71	2.00	13.10	10.00	11.39	8.00	.74	.60	2.98	1.00	21.50	6.25
Chem. Co. of Canton, Baltimore, Md.	Pure Dissolved S. C. Bone... Soluble Bone and Potash... " Spec. W.C. & G. Mix e Baker's Stand'd Grou'd Bone	14.89	10.00	2.11	4.00	.80	1.00	17.80	15.00	17.00	14.00	....	....	17.75	15.25	2.50	
"	"	8.59	6.00	3.01	4.00	1.11	2.00	12.71	12.00	11.60	10.00	....	....	3.33	2.00	18.00	2.50
"	"	8.33	6.00	1.24	3.00	1.82	2.00	11.39	11.00	9.57	9.00	1.34	1.32	4.19	2.00	24.75	6.25
Crocker Fert. & Chem. Co., Buffalo, N.Y.	New Rev'l Amm. Superphos. Universal Grain Grower... General Crop Phosphate... Potato, Hop and Tobacco Fert... Erie Fertilizer .....	9.54	7.00	1.99	3.00	.71	1.00	12.94	11.00	11.53	10.00	1.14	1.23	2.47	1.62	27.25	6.75
"	"	6.92	5.00	1.64	2.00	.66	1.00	9.22	8.00	8.56	7.00	1.71	.82	3.57	2.70	24.25	6.75
"	"	6.70	5.00	1.91	2.00	.62	1.00	9.23	8.00	8.61	7.00	1.71	.82	2.10	1.08	22.25	6.25
"	"	9.29	8.00	1.49	2.00	.40	1.00	11.18	11.00	10.78	10.00	2.85	2.05	4.01	3.21	32.25	5.25
"	"	9.76	9.00	1.97	2.00	2.89	2.00	14.62	13.00	11.73	11.00	....	....	14.25	13.25	1.00	
Cleveland Dryer Co., Cleveland, O.	Horsehead Phosphate..... XXX Phosphate..... Potato & General Crop Fert. Buckeye Am'd. Bone Sup' Ph. Ohio Seed Maker & Potash..	7.15	....	3.91	....	1.23	2.00	12.29	12.00	11.06	10.00	....	....	13.00	12.25	.75	
"	"	3.77	....	9.65	....	2.44	2.00	15.86	15.00	13.42	13.00	....	....	15.50	14.50	1.00	
"	"	5.96	....	3.03	....	3.36	1.00	12.35	11.00	8.99	10.00	1.77	1.03	6.18	6.00	30.00	25.75
"	"	7.27	....	2.87	....	3.19	2.00	13.33	11.00	10.14	9.00	3.03	2.46	.36	1.00	20.75	4.25
"	"	6.59	....	3.65	....	3.76	5.00	14.00	15.00	10.24	10.00	1.71	1.23	2.80	1.00	26.00	3.00
"	"	8.90	....	3.97	....	1.32	2.00	14.19	12.00	12.87	10.00	....	....	2.14	1.00	17.50	3.75
"	"	2.79	....	11.12	....	9.12	14.00	23.03	20.00	13.91	6.00	3.01	2.06	....	....	34.25	22.50
"	"	5.96	....	4.89	....	3.61	5.00	14.46	15.00	10.85	10.00	1.87	1.23	3.28	....	33.25	28.00
"	"	6.73	....	3.24	....	1.80	....	11.77	....	9.97	10.00	1.14	.62	1.66	1.00	23.25	3.25
Detrick Fert. & Chem. Co., Baltimore	Fine Ground Animal Bone .. Royal Crop Grower..... Imperial Compound.....	7.29	6.00	1.88	2.00	1.23	....	27.25	23.00	....	....	2.51	2.05	28.50	24.25	4.25	
"	"	8.84	7.00	1.66	2.00	.90	1.50	11.40	10.50	10.50	9.00	.98	.82	1.53	1.00	19.50	16.75

TABLE II.—Continued

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Difference between Value-tions.									
		Total Soluble Phosphoric Acid in Metal Phosphate Sample.	Reverted Phosphoric Acid in Metal Phosphate Sample.	Insoluble Phosphoric Acid in Metal Phosphate Sample.	Guaranteed Phosphoric Acid in Metal Phosphate Sample.	Total Phosphoric Acid in Metal Sample.	Available Phosphoric Acid in Metal Sample.	Nitrogen in Official Sample.	Potash in Official Sample.	Vibration of Official Sam-ple.	Dissolution of Guaranteed Analyses.
Detrick Fer. & Chem. Co., Baltimore	Standard Potash Fert. ....	8.49 6.00	1.94 2.00	.87 1.00	11.30 9.00	10.43 8.00	1.31 1.31	1.23 4.57	4.60 25.25	22.25 3.00	3.00
" "	Dissolved S. C. Bone. ....	12.61 11.00	2.24 3.00	.55 1.00	15.40 15.00	14.85 14.00	....	....	....	15.75 15.25	15.25
" "	Soluble Bone Phos & Pith F.	6.77 8.00	2.49 2.00	.57 2.00	11.83 12.00	11.26 10.00	....	....	....	16.25 15.25	1.00
Detrick, Louis F., Baltimore, Md.	Ochilla Guano. ....	12.82 11.00	2.08 3.00	.74 .45	17.15 15.65	14.75 14.91	14.00 14.00	....	....	13.50 9.75	3.75
" "	Xxtra Acid Phos. ....	9.53 8.00	2.04 2.00	2.00 1.71	2.50 12.02	12.50 11.57	10.00 10.00	....	....	15.75 15.00	7.75
" "	Bone and Potash Mixture. ....	7.70 6.00	2.46 2.00	3.50 1.84	11.50 10.16	8.00 7.71	8.00 7.78	1.64 1.64	3.50 3.00	26.25 24.00	1.25
" "	Kangaro Komplete Komp'd	8.14 6.00	1.84 2.00	1.34 1.30	11.00 9.98	8.00 8.00	1.15 1.15	1.03 1.03	2.00 1.25	20.75 18.25	2.25
" "	Sockless and Shoeless. ....	12.55 ...	2.82 ...	2.11 1.00	17.48 15.00	15.37 14.00	....	....	....	17.00 15.25	1.75
Eureka Fert. Co., Perryville, Md.	King's Diss. S. C. Bone. ....	10.23 11.00	4.42 3.00	1.35 ...	16.00 21.88	14.65 22.00	14.00 14.00	4.43 1.64	....	16.00 14.75	1.25
Great Eastern Fert. Co., Rutland, Vt.	Dissolved Bone. ....	8.05 9.00	3.97 2.00	.96 ...	12.98 12.00	12.02 11.00	11.00 11.00	2.91 2.00	32.00 22.00	16.25 10.00	1.25
" "	Pure Bone. ....	5.28 6.00	3.50 2.00	2.75 ...	11.53 10.54	8.78 8.00	8.00 8.00	.96 .96	2.5 2.00	9.00 9.00	16.25 3.25
" "	Soluble Bone and Potash. ....	6.51 6.00	2.31 2.00	1.72 ...	10.54 10.16	8.82 8.00	2.17 2.05	4.34 4.34	3.25 3.25	28.50 24.75	3.75
" "	English Wheat Grower. ....	6.06 6.00	2.66 2.00	1.44 ...	10.16 10.95	8.72 8.00	1.97 1.97	8.22 8.22	4.00 4.00	22.00 19.50	2.50
" "	Vegetable, Vine & Tobacco. ....	6.36 6.00	2.82 2.00	1.81 ...	10.95 9.18	8.00 8.00	1.80 1.80	1.64 1.64	2.74 2.00	24.50 20.75	3.75
Hess, S. M. & Bro., Philadelphia, Pa.	Emperor Phosphate. ....	10.12 8.00	2.62 2.00	1.05 ...	13.79 10.00	12.74 10.00	10.00 10.00	3.30 3.30	1.00 1.00	19.00 12.75	6.25
" "	Keystone Bone Phos. ....	6.75 7.00	2.26 2.00	1.80 ...	10.81 10.81	9.00 9.00	2.30 2.34	1.00 1.00	26.50 26.50	15.75 10.75	10.75
" "	Soluble Bone. ....	14.65 11.00	1.94 3.00	.29 ...	16.88 14.00	16.59 14.00	....	....	....	17.00 14.75	2.25
Lippitt, W. F., Charles Town, W. Va.	Spec'l Mix. Amm't'd B. Ph's. ....	6.78 7.00	2.93 1.00	1.27 ...	10.98 ...	9.71 8.00	1.09 1.09	1.03 1.26	1.25 1.25	19.00 16.75	2.25
Maryland Fer. & Chem. Co., Balti-	Linden Superphos. ....	5.58 7.00	5.55 4.00	2.00 1.00	13.13 12.00	11.13 11.00	....	....	2.96 2.50	17.50 16.25	1.25
" "	Dissolved S. C. Bone. ....	11.66 9.00	3.48 5.00	.89 ...	16.03 14.50	15.14 14.00	....	....	....	16.25 15.00	1.25

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Difference between Values.																	
		Total Phosphoric Acid in Official Sample.	Soluble Phosphoric Acid in Official Sample.	Soluble Phosphoric Acid Guaranteed.	Reverted Phosphoric Acid in Official Sample.	Inositol Phosphoric Acid in Official Sample.	Total Phosphoric Acid Guaranteed.	Total Phosphoric Acid in Official Sample.	Available Phosphoric Acid in Official Sample.	Total Phosphoric Acid Guaranteed.	Nitrogen Guaranteed.	Potash in Official Sample.	Variation of Official Sam- ple.						
Maryland Fer. & Chem. Co., Balt., Md.	Ammoniated Bone .....	7.45	6.00	1.90	3.00	3.34	1.00	12.69	10.00	9.35	9.00	1.91	1.84	2.74	1.50	26.00	22.50	3.50	
"	Globe Complete Manure .....	7.67	6.00	1.17	3.00	3.39	1.00	12.23	10.00	8.84	9.00	1.74	1.64	2.75	1.50	34.75	21.50	3.25	
"	Tornado Fertilizer .....	8.70	7.25	3.24	3.75	3.51	1.00	13.45	12.00	11.94	11.00	6.2	4.13	8.66	3.25	22.50	19.50	3.00	
"	Dissolved Phosphate .....	12.46	10.00	3.03	4.50	.48	1.00	15.92	15.50	15.49	14.50	....	....	....	....	16.25	16.00	.25	
North Western Fert. Co., Chicago, Ill.	H. S. B. Acidulated Bone .....	7.24	7.00	2.81	3.00	2.95	2.00	13.00	12.00	10.05	10.00	1.59	.82	1.11	1.05	20.75	16.50	4.25	
"	H. S. B. Garden City Super .....	5.02	5.00	3.62	3.00	3.12	2.00	9.76	10.00	8.64	8.00	2.92	2.05	1.05	.54	27.25	21.75	5.50	
"	H. S. B. Pure Ground Bone .....	"	"	"	"	21.35	18.00	....	....	....	....	4.25	2.46	....	....	31.00	22.75	8.25	
Ober, G., & Sons Co., Baltimore, Md.	Farmers' Stand'd Am'd Phos Dis., Bone Phos. and Potash .....	8.33	6.00	8.80	8.50	2.80	2.50	.59	2.00	10.30	9.00	9.71	8.00	1.78	1.75	3.29	2.00	25.25	
"	Dissolved Bone Phosphate .....	12.31	10.50	4.59	3.50	.26	2.00	17.16	16.00	16.90	14.00	....	....	....	....	17.25	16.00	4.25	
"	S. & S. Sp'l Wheat Compo'd .....	7.03	6.50	2.23	2.00	1.13	1.50	10.87	10.00	9.74	8.50	1.91	1.40	3.24	2.00	25.25	17.75	1.50	
"	Shenandoah Bone Phos .....	9.03	6.00	2.55	2.00	.41	3.00	11.99	11.00	11.58	8.00	2.02	1.65	2.97	2.00	27.75	22.25	5.25	
"	Special Mixture for Wheat .....	9.01	6.00	2.55	2.00	.46	2.00	12.00	10.00	11.54	8.00	1.29	1.00	2.80	1.50	23.50	18.00	5.50	
"	Farmers' Mixture .....	9.17	7.00	2.69	2.00	.26	2.00	12.12	11.00	11.86	9.00	1.15	.75	2.79	2.00	23.00	18.25	4.75	
Ohio Farmers' Fert. Co., Columbus, O.	Corn, Oats & Wheat Fish Gu. Superior Phosphate .....	6.08	....	3.38	....	1.79	1.00	11.20	10.00	9.41	9.00	1.37	1.1	23.5	6.42	2.00	26.75	20.00	6.75
"	Acid Phosphate .....	9.97	....	5.04	....	1.14	1.00	16.15	15.00	15.01	14.00	....	....	....	....	16.25	15.25	1.00	
"	West Virginia Special .....	7.41	....	3.16	....	.94	2.00	12.50	11.00	11.36	9.00	....	....	....	....	13.25	11.00	2.25	
"	Potato and Turnip .....	8.21	....	2.92	....	1.36	2.00	12.49	14.00	11.18	12.00	....	....	....	....	2.04	1.00	16.25	
"	Fine Ground Bone Meal .....	6.69	....	1.57	....	2.75	1.00	11.01	9.00	8.26	8.00	2.17	2.50	4.91	4.00	20.25	28.50	.75	
Old Dominion Guano Co., Norfolk, Va.	High Grade Bone Phosphate .....	13.28	....	1.71	....	20.83	20.00	....	....	....	....	1.60	1.75	....	....	21.25	21.25	...	
"	High Grade Acid Phosphate .....	11.31	....	2.11	....	1.90	....	14.38	13.00	....	....	....	....	....	....	16.00	14.00	2.00	
"	Special Wheat Gano .....	7.29	....	2.06	....	2.10	....	13.42	12.00	....	....	....	....	....	....	15.25	13.00	2.25	
"	Planters' Bone & Poth Mix .....	11.05	....	1.33	....	1.46	....	9.35	8.00	2.40	1.65	4.06	2.00	31.00	21.00	10.00	2.15	1.00	
																12.38	10.00	4.50	

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Soluble Phosphate Acid in Omcial Sample.	Soluble Phosphate Acid Reverted Phosphate Acid in Omcial Sample.	Reverted Phosphate Acid Reverted Phosphate Acid in Omcial Sample.	Inosoluble Phosphate Acid Availabile Phosphate Acid in Omcial Sample.	Total Phosphate Acid Availabile Phosphate Acid in Omcial Sample.	Nitrogen in Omcial Sam- ple.	Potash in Omcial Sample.	Vaularion of Omcial Sam- ple.	Difference between Val- uations of Guaranteed	Differences.
Old Dominion Guano Co., Norfolk, Va.	H. G. Alkaline Bone & Potl	11.31	... 1.38	... 1.40	... 14.06	... 12.69 10.40	... 3.85 2.00 20.00	14.25	5.75		
Pacific Guano Co., New York, N. Y.	A No. 1 Phosphate	4.76	4.00 4.66	3.90 2.96	1.00 12.38	8.00 9.42	7.00 1.47 1.09	2.46 1.50	23.25	17.00	6.25
"	Nobscut Guano	4.81	5.00 4.02	3.00 2.94	1.00 12.37	9.00 9.43	8.00 1.54 1.15	2.39 2.00	23.75	19.00	4.75
"	Diss. Bone Phos. of Lime	12.51	11.00	2.51	2.00 1.38	16.46	15.08 13.00	... 1.00	16.25	14.00	2.25
"	Potato Phosphate	4.4	4.4	3.78	1.00 2.35	8.84	7.00 6.49	6.00 1.62 1.23	5.74	5.00	26.00
"	Dissolved Bone and Potash	4.4	4.4	2.63	1.53	12.98	10.75 10.00	2.00 16.00	14.35	1.75	
"	Fine Ground Bone	4.4	4.4	...	...	17.25	14.00	2.50 1.65	22.25	17.25	5.00
Piedmont Mt. Airy Guano Co., Balto.	Pid't Dis. B. Phos. P'g Goods	8.21	...	3.04	... .89	12.14	11.35 10.50	... 1.42	1.00	15.00	13.50
"	Piedmont H. G. S. C. Bone	11.11	...	3.90	... 1.52	1.00 16.53	15.00 15.01	14.00	...	16.25	15.25
"	Piedmont Royal Ann. Bone	44	44	3.56	2.18	8.59	8.00 6.41	6.00 1.56	4.38	3.00	23.50
"	Pied't Pure Raw Bone Mix'e	3.84	...	3.44	... 1.25	8.53	7.28	7.00 1.15	.84	1.00	17.75
Powell Fert. & Chem. Co., Balt., Md.	Dissolved Soluble Bone Phos.	13.09	8.00	1.95	6.00 1.37	1.00 16.41	15.00 15.04	14.00	...	16.50	15.25
"	Bone and Poash Fert.	5.37	6.00	4.72	4.00 1.92	1.00 12.01	12.00 10.09	10.00	...	3.01 2.00	16.75
"	Red Bag Fertilizer	6.72	5.00	2.20	3.00 1.42	1.00 10.34	9.00 8.92	8.00 1.26	1.25	2.10	1.00
Rasin Fertilizer Co., Baltimore, Md.	Ground Bone.	6.31	6.00	2.29	2.00 2.41	... 22.30	20.00 8.60	8.00 4.13	3.30	31.25	27.00
"	Empire Guano.	6.97	8.00	2.67	2.00 4.35	1.00 14.24	11.00 9.99	10.00 2.14	2.00	24.25	22.00
"	Dissolved Bone.	6.22	6.00	3.77	2.00 2.38	1.00 12.37	9.00 9.99	8.00 1.37	1.00	22.50	16.75
"	Ammoniaed Superphos.	9.35	10.00	2.94	2.00 .73	1.00 12.29	12.00 10.00	1.00 2.76	1.25	17.75	15.25
"	Bone and Poash.	10.49	10.00	4.86	4.00 .81	1.00 16.16	15.00 15.25	14.00	...	16.25	15.25
"	Acid Phosphate.	10.45	10.00	4.83	4.00 .72	1.00 16.00	15.00 15.28	14.00	...	16.25	15.25
"	Walker's Diss. S. C. Bone.	11.86	11.86	3.59	1.30	3.00 15.30	12.00 14.00	1.70 1.72	1.00	26.50	23.50
Ramsburg Fert. Co., Frederick, Md.	Excelsior Plant. Food.	10.41	10.41	3.45	1.05	2.00 16.36	16.00 15.31	14.00	...	16.25	15.75
"	Dissolved Bone Superphos.	11.86	11.86	3.45	1.05	2.00 16.36	16.00 15.31	14.00	...	16.25	15.75

TABLE II.—*Continued.*

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	TESTS FOR PHOSPHORIC ACID IN OMNICAL SAMPLE.										Differences between Values.		
		1	2	3	4	5	6	7	8	9	10			
Reese, John S., & Co., Beloit, Md.	Elm Phosphate Half and Half	10.00 1.20	4.00 4.72	5.97 4.00	3.13 2.14	19.10 11.06	1.00 10.02	14.00 8.00	15.97 .82	14.00 2.48	20.75 1.60	14.75 16.00	4.75	
Robinson, Isaac, Baltimore, Md.	Poorless Phosphate Cyclone Phosphate H. G. Soluble Phosphate	4.73 9.03 12.91	5.00 7.00 10.00	3.32 2.95 1.83	3.00 3.00 4.00	1.00 1.00 1.00	11.35 12.85 14.74	9.00 11.00 14.00	8.05 11.98 14.00	.65 1.50 1.50	14.50 13.50 12.00	3.00 1.50 1.00	3.25	
Schenk, F. & Sons, Wheeling, W. Va	Daisy Fertilizer	10.01 13.76 12.21 10.89 6.70	3.02 1.70 2.65 2.59 6.00	1.66 .54 .45 .07 3.93	14.09 16.00 15.31 14.55 2.84	... ... ... ... ...	13.03 12.00 15.46 13.48 13.47	11.08 14.00 14.86 9.00 9.00	1.08 .08 10.00 2.50 10.63	.82 2.33 2.77 3.97 2.50	29.00 2.00 19.00 3.05 2.00	20.75 16.25 14.25 14.25 21.50	8.25	
Slingshaff & Co., Baltimore, Md.	Special Bone Phosphate Dissolved (South Carolina) Alkaline Superphos. Universal Gano. Ammoniated Bone	10.01 11 11 11 11	13.76 11 11 11 11	1.66 .54 .45 .07 3.93	14.09 16.00 15.31 14.55 2.84	... ... ... ... ...	13.03 12.00 15.46 13.48 13.47	11.08 14.00 14.86 9.00 9.00	1.08 .08 10.00 2.50 10.63	.82 2.33 2.77 3.97 2.50	29.00 2.00 19.00 3.05 2.00	20.75 16.25 14.25 14.25 21.50	8.25	
Susquehannah Fert. Co., Balto., Md.	XXXV Phosphate Dissolved S. C. Bone	7.24 13.15	2.31 2.54	1.68 1.09	2.00 1.00	11.23 16.78	10.00 15.00	9.55 15.69	8.00 14.00	1.23 1.00	2.00 1.00	21.00 21.00	17.25 17.25	3.75
Scott Fert. Co., Elkhorn, Md.	Tip Top Soluble Bone	13.01	3.08	.77	15.86	...	15.08	14.00	...	...	...	16.00	14.75	1.25
Swift & Co., Chicago, Ill.	Ground Steamed Bone	...	4.00	...	26.16	26.00	...	4.00	3.06	2.90	...	29.50	29.00	.50
Thomas, I. P. & Sons Co., Phila., Pa.	S. C. Phosphate Alkaline Bone Normal Bone Phos. Improved Superphos	13.82 2.25 5.12 6.01	1.47 7.77 2.48 5.57	4.54 5.30 2.00 2.74	1.00 1.00 1.00 1.00	19.83 15.00 10.05 14.32	15.00 14.00 10.05 11.00	15.29 14.00 14.00 11.58	14.00 14.00 14.50 10.00	1.03 1.03 2.12 1.00	18.00 19.00 14.75 12.00	15.25 14.75 14.25 12.50	2.75	
Travers, S. W. & Co., Richmond, Va.	Capital Dissolved S. C. Bone	7.69	4.35	2.01	14.05	...	12.04	12.00	...	...	...	14.00	13.00	1.00

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	TESTS										Differences between Values.	
		Total Phosphate Acid in Ommercial Sample.	Soluble Phosphate Acid in Ommercial Sample.	Soluble Phosphate Acid Guaranteed.	Inosoluble Phosphate Acid in Ommercial Sample.	Inosoluble Phosphate Acid Guaranteed.	Total Phosphate Acid in Ommercial Sample.	Total Phosphate Acid Guaranteed.	Avaliable Phosphate Acid in Ommercial Sample.	Nitrogen in Ommercial Sam- ple.	Potash in Ommercial Sam- ple.	Vaulation of Ommercial Sam- ple.	
Travers, S. W. & Co., Richmond, Va.	Dissolved Bone Phosphate.	12.25	12.25	12.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	12.25	1.50
National Tobacco Fertilizer.	National Tobacco Fertilizer.	8.07	8.07	8.07	2.88	2.88	2.88	2.88	2.88	2.88	2.88	8.07	4.50
Champion Corn Grower.	Champion Corn Grower.	7.06	7.06	7.06	2.81	2.81	2.81	2.81	2.81	2.81	2.81	7.06	5.00
Beef Blood and Bone.	Beef Blood and Bone.	5.60	5.60	5.60	2.95	2.95	2.95	2.95	2.95	2.95	2.95	5.60	3.50
Tygart Allen Fert. Co., Phila., Pa. . . . .	Dissolved S. C. Rock.	10.87	12.00	3.37	2.00	1.96	1.00	16.20	15.00	14.24	14.00	16.00	.75
Va. Carolina Chem. Co., Richm'd, Va	Guaranteed 14 per cent Acid Pho. Standard Bone & Potash Fer.	14.58	8.00	2.46	6.00	2.23	1.00	19.25	15.00	17.02	14.00	18.25	3.00
Wheeling Butchers' Asso., Wheeling Ohio Valley Bone Dust . . . . .	Prolific Crop Producer.	12.25	11.00	2.78	2.00	2.00	1.36	16.39	12.40	15.03	13.00	16.25	4.00
Williams & Clark Fer. Co., New York	Acorn Brand Acid Phos.	12.25	11.00	2.80	2.89	1.51	1.51	17.35	14.00	10.89	10.00	2.33	2.00
	Dissolved Bone and Potash.	8.00	8.00	2.89	2.89	1.00	1.00	12.30	8.00	9.27	1.39	1.09	2.25
	Carteret Ground Bone.	4.49	6.00	4.78	1.00	3.03	1.00	12.30	8.00	7.60	1.39	1.09	2.25
	Royal Bone Phos.	2.50	5.00	3.83	1.00	2.38	1.00	8.71	7.00	6.33	6.00	1.58	1.75
	Am'ens G'd Grower Potato F.												4.75
Wooldridge, Robt. A., Baltimore, Md	Buffalo Pure Bone Phos.	7.99	7.99	3.31	3.10	1.40	1.40	11.30	10.00	2.43	2.50	16.20	2.25
	Liberty Bell Potash Mixture	8.51	8.51	3.70	3.70	.81	.81	12.21	11.00	5.31	2.00	17.01	2.00
	Florida Acid Phosphate.	7.77	7.77	4.67	4.67	2.24	2.24	15.44	14.00	5.88	1.50	16.25	1.50
	Chieftain . . . . .	6.75	6.75	2.19	2.19	1.18	1.18	8.94	9.00	1.78	1.00	24.75	2.00
	Little Giant . . . . .	6.59	6.59	2.34	2.34	1.75	1.75	11.68	9.00	1.08	1.00	22.25	2.00
	Triumph. . . . .	6.52	6.52	2.47	2.47	1.60	1.60	10.59	8.99	8.99	8.00	18.50	3.50
Zell Guano Co., Baltimore, Md . . . . .	Am'td Bone Superphos.	8.92	8.92	3.57	3.57	1.94	1.94	11.51	10.16	6.41	3.00	27.25	2.75
	Littie Giant . . . . .	6.77	6.77	3.57	3.57	1.15	1.15	9.34	8.00	1.29	1.00	20.75	5.50

TABLE II.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Differences between Values																
		Analyses.			Potash Guaranteed			Nitrogen Guaranteed			Potash in Metal Sample.							
Zell Guano Co., Baltimore, Md.	Diss. Bone Phos. and Potash.	11.06	...	2.05	...	1.22	...	14.33	...	13.11	12.00	...	2.21	1.00	17.75	14.50	3.25	
"	Dissolved Bone Phosphate.	12.40	"	2.04	...	1.73	...	16.17	...	14.44	14.00	...	...	...	15.75	14.75	1.00	
"	Dissolved S. C. Phos.	"	"	1.22	...	1.68	...	14.61	...	12.93	12.00	...	...	...	14.75	13.00	1.75	
"	Pure Ground Raw Bone	"	"	"	...	...	24.75	20.00	...	...	4.02	3.28	...	...	32.25	26.75	5.50	
Baugh & Sons Co., Baltimore, Md.	Bone Meal	.....	.....	.....	.....	22.98	21.50	....	....	4.19	3.28	...	...	31.75	27.50	4.25		
Jarecki Chemical Co., Sandusky, O.	Lake Erie Fish Guano.	6.34	...	3.54	...	2.69	1.00	12.57	11.00	9.88	10.00	2.94	1.60	26.50	21.25	5.25		
"	C. O. D. Phosphate.	11.89	...	3.51	...	1.19	1.00	16.59	15.00	15.40	14.00	...	...	16.50	15.25	1.25		
"	D. B. B. Wheat Special.	13.33	...	1.83	...	.85	2.00	16.01	17.00	15.16	15.00	...	...	16.25	16.50	-2.25		
"	O. K. Fertilizer.	3.80	...	4.61	...	.79	1.00	8.20	7.00	7.41	6.00	.48	.40	.47	.50	15.50	11.25	4.25
Brown & Shaw.	Retsof "C" Salt.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Moisture, .04;	Insoluble Sulphate, .84;	Calcium Chloride, .98;	Sodium Chloride, .98.	

TABLE III.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Agents' Number.	Soluble Phosphoric Acid in Ommercial Sample.	Reverted Phosphoric Acid in Ommercial Sample.	Soluble Phosphoric Acid in Inspectors' Sample.	Insoluble Phosphoric Acid in Ommercial Sample.	Total Phosphoric Acid in Inspectors' Sample.	Total Phosphoric Acid in Ommercial Sample.	Avaliable Phosphoric Acid in Inspectors' Sample.	Avaliable Phosphoric Acid in Ommercial Sample.	Nitrogen in Ommercial Sample.	Nitrogen in Inspectors' Sample.	Potash in Ommercial Sample.	Potash in Inspectors' Sample.	Dilution of Ommercial Sam-	Dilution of Inspectors' Sam-	Nitrogen in Ommercial Sample.	Nitrogen in Inspectors' Sample.	Potash in Ommercial Sample.	Potash in Inspectors' Sample.	Difference between Valu-
Allison & Addison, Richmond, Va..	Standard Acid Phosphate	37	9.42	10.00	2.90	3.00	1.50	1.74	13.82	14.74	12.32	13.00	....	....	....	....	14.00	14.75	.75		
Arm our Fert. Works, Chicago, Ill..	Grain Grower..	13	7.06	6.10	2.88	4.16	2.78	4.02	12.72	14.28	9.94	10.26	2.52	2.02	2.39	2.62	28.75	27.50	-1.25		
"	Grain Grower..	14	6.09	5.94	2.98	4.74	2.28	4.32	11.20	12.08	8.92	10.83	1.55	1.53	2.12	2.15	23.75	23.75	-5.00		
"	Ammoniated Bone & Potash..	14	6.09	5.94	2.98	4.74	2.28	4.32	11.20	12.08	8.92	10.83	1.55	1.53	2.12	2.15	20.96	23.00	-4.25		
"	Bone Meal.....	14	6.09	5.94	2.98	4.74	2.28	4.32	11.20	12.08	8.92	10.83	1.55	1.53	2.12	2.15	29.50	29.50	-2.75		
Baltimore Guano Co., Baltimore, Md.	Am'iated Bone Phos..	16	6.49	6.87	1.81	1.60	3.79	3.04	11.09	11.51	8.30	8.47	1.70	1.12	3.40	2.97	24.75	21.50	-3.25		
"	Defiance Bone	40	10.00	1.24	2.50	7.64	.53	2.28	13.03	11.16	12.50	8.88	....	....	3.49	2.86	18.75	15.75	-3.00		
Baltimore Pulv'ng Co., Balt., Md..	Farmer's Favorite Fert.,,..	1	3.76	1.09	2.70	4.57	.82	.84	7.28	6.50	6.46	5.66	1.17	1.00	3.87	2.15	20.25	16.25	-4.00		
Baugh & Sons Co., Baltimore, Md ..	Dissolved Bone Meal.....	45	7.10	6.55	1.88	3.37	1.36	1.14	14.70	19.19	18.05	19.92	1.75	1.62	21.75	20.25	18.50	18.50	1.50		
"	General Crop Grower.....	33	6.00	6.15	3.33	1.33	1.98	3.02	11.31	10.50	9.33	9.48	2.57	2.37	1.04	1.12	26.25	24.75	1.50		
"	Double Eagle Phosphate.....	44	6.00	6.15	3.33	1.33	1.98	3.02	11.31	10.50	9.33	9.48	2.57	2.37	1.04	1.12	26.25	24.75	1.50		
"	Eagle Phosphate.....	24	6.00	5.96	3.65	1.12	2.65	3.12	11.73	11.73	8.61	9.18	2.36	2.37	1.04	1.12	26.25	24.75	1.50		
"	"	24	6.00	5.96	3.65	1.12	2.65	3.12	11.73	11.73	8.61	9.18	2.36	2.37	1.04	1.12	26.25	24.75	1.50		
"	"	37½	6.00	5.96	3.65	1.12	2.65	3.12	11.03	11.03	9.00	9.42	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.62	8.87	9.28	2.36	2.37	1.04	1.12	27.25	25.25	1.00		
"	"	33	6.00	5.96	3.65	1.12	2.65	3.12	10.62	10.6											

TABLE III.—*Continued.*

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Differences between Values	
		Sample	Sample
Bradley Fert., Co., New York, N. Y.	Soluble Dissolved Bone.....	9.16	1.96
"	Niagara Phosphate.....	2.38	16.27
"	"	1.77	10.42
"	"	6.01	2.44
"	Dissolved Bone with Potash.	4.61	3.04
"	Dissolved Bone.....	6.84	2.36
"	"	8.99	3.74
"	Fine Ground Bone.....	9.55	4.05
"	"	50	8.47
"	Pure Dissolved S. B. Bone.....	14.89	10.00
Chem. Co. of Canton, Baltimore, Md.	Baker's Standard Ground B.	24	21
Cleveland Dryer Co., Cleveland, O.	Buckeye Am'd. Bone Sup'ph.	7.27	1.23
"	Potato & General Crop Fert.	5.96	6.22
"	Phospho Bone.....	6.73	6.50
"	XXX Phosphate.....	3.77	9.65
"	"	25	9.36
"	"	3	10.43
"	Superior Bone Meal.....	53	3.34
"	Square Bone.....	53	2.79
"	Horsehead Phosphate.....	25	7.15
Crocker Fert. & Chem. Co., Buffalo, N. Y.	General Crop Phosphate.....	6.70	3.65

TABLE III.—*Continued.*

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	TESTS FOR PHOSPHORIC ACID									
		TESTS FOR PHOSPHORIC ACID					TESTS FOR POTASH				
TESTS FOR PHOSPHORIC ACID		TESTS FOR POTASH		TESTS FOR PHOSPHORIC ACID		TESTS FOR POTASH		TESTS FOR PHOSPHORIC ACID		TESTS FOR POTASH	
		P.L.	P.L.	P.L.	P.L.	P.L.	P.L.	P.L.	P.L.	P.L.	P.L.
Crocker Fer. & Chem. Co., Buffalo...	General Crop Phosphate .....	1.99	2.66	1.32	1.52	1.30	12.08	1.16	1.89	20.00	2.25
" "	Universal Grain Grower.....	4.32	7.76	0.66	0.93	0.22	8.10	8.56	7.17	21.75	.50
" "	Erie Fertilizer.....	6.92	4.17	1.64	1.74	1.00	9.08	7.34	1.39	23.50	.75
" "	Potato, Hop and Tobacco Fert.....	3.88	3.46	1.97	4.76	2.89	1.16	14.62	11.73	20.50	.35
" "	Special Potato Manure .....	9.76	7.60	1.97	2.15	1.49	2.15	14.42	12.27	14.00	.25
" "	Fine Ground Animal Bone .....	9.29	6.78	1.49	2.84	4.0	6.1	11.18	11.56	10.78	.25
Detrick Fer. & Chem. Co., Baltimore	Soluble Bone Phos & P'th F.	6.77	6.81	4.49	3.84	.57	1.20	11.83	11.85	11.26	16.25
" "	Imperial Compound .....	5.4	6.98	3.98	3.75	1.65	1.27	12.00	10.73	10.70	2.62
" "	Standard Potash Fert.....	5.4	8.84	6.13	1.66	3.27	.90	11.40	11.10	10.50	9.40
" "	Dissolved S.C. Rock.....	5.4	8.49	6.33	1.94	2.54	.87	12.80	11.25	10.43	9.87
" "	Dissolved Bone.....	24	12.61	11.42	2.24	2.43	.55	1.82	15.40	15.67	14.85
Great Eastern Fert. Co., Rutland, Vt	English Wheat Grower.....	29	5.28	7.20	3.50	2.67	2.75	4.06	11.53	13.93	8.78
" "	" "	34	6.92	3.03	2.46	12.41	9.95	9.90	2.64	2.64	2.25
" "	" "	42	6.92	2.64	4.06	13.56	9.56	1.02	2.40	2.40	1.50
" "	" "	45	4.46	3.49	1.59	7.95	1.08	8.87	3.14	3.14	.50
" "	" "	26	6.81	2.16	3.13	12.10	8.97	1.21	21.00	21.00	1.00
" "	" "	23	8.07	1.97	1.28	11.32	9.53	9.53	3.21	21.50	.50
" "	Dissolved Bone.....	34	10.23	9.42	5.72	1.35	7.74	16.00	18.36	14.65	17.62
" "	Soluble Bone and Potash .....	26	9.58	3.30	1.88	12.98	12.61	14.48	16.00	18.25	2.25
" "	Pure Bone.....	34	8.05	3.97	3.45	.96	21.88	17.49	2.43	18.66	.00

TABLE III.—Continued.

NAME AND ADDRESS OF MANUFACTURER.	NAME OF BRAND.	Agents' Number.									
		Soluble Phosphate Acid in Oxidized Sample.	Soluble Phosphate Acid in Reverted Sample.	Soluble Phosphate Acid in Inspected Sample.	Insoluble Phosphate Acid in Reverted Phosphate Acid in Oxidized Sample.	Insoluble Phosphate Acid in Inspected Sample.	Total Phosphate Acid in Oxidized Sample.	Total Phosphate Acid in Inspected Sample.	Total Phosphate Acid in Available Sample.	Avaliable Phosphate Acid in Inspected Sample.	
Great Eastern Fert. Co., Rutland, Vt.	Pure Bone	14	11.88	2.82	2.77	1.81	1.41	10.99	12.06	9.18	1.68
"	Pure Ground Bone	45	6.36	7.88	3.25	2.07	2.07	10.65	1.80	3.29	2.45
"	Wheat Special	34	6.26	6.26	3.25	3.25	11.60	9.53	1.84	2.63	2.50
"	"	55	6.26	6.26	3.25	3.25	11.60	9.53	1.84	2.63	2.50
North Western Fert. Co., Chicago.	H. S. B. Pure Ground Bone	37	...	...	...	...	21.35	23.06	...	...	31.00
Ober, G. & Sons Co., Baltimore, Md.	Dissolved Bone Phosphate	16	12.31	12.65	4.59	3.52	.26	17.16	16.53	16.90	16.17
"	"	8	12.84	12.84	3.61	3.61	.24	16.27	16.52	16.45	16.28
"	"	37	8.33	9.27	1.38	1.70	.59	10.30	11.51	9.71	10.97
"	Farmers' Stand'd Am'd Phos	7	8.88	8.88	2.24	2.24	.52	11.64	11.12	10.99	11.12
"	"	8	9.17	9.03	2.60	2.06	.26	8.41	12.12	11.86	10.41
"	Farmers' Mixture	7	9.17	9.27	2.06	.26	.81	12.14	11.33	1.39	3.94
"	Dissolved Bone Phos.	48	12.31	12.70	4.59	3.52	.26	16.90	16.67	17.74	16.73
S. & S. Sp1 Wheat Compo'd.	48	7.51	7.96	2.23	2.45	1.13	1.36	10.87	11.77	10.41	11.78
Ohio Farmers Fer. Co., Columbus, O.	Corn, Oats & Wheat Fish Gu.	18	6.08	3.49	3.33	4.45	1.79	14.6	11.20	9.41	7.94
"	"	46	6.69	5.32	5.32	4.45	2.61	12.38	9.77	8.21	9.01
"	Potato and Truck	46	5.56	5.56	1.57	3.34	2.75	4.32	11.01	13.22	8.26
Old Dominion Fert. Co., Norfolk, Va.	High Grade Bone Phosphate	50	13.28	10.84	1.10	2.31	1.71	2.01	16.09	15.16	14.38
"	Special Wheat Guano	4	7.29	5.27	2.06	2.13	2.10	1.64	11.45	9.04	9.35
Pacific Guano Co., New York, N. Y.	Diss. Bone Phos. of Lime	40	12.54	10.36	2.54	3.66	1.38	1.61	16.46	15.63	15.08
"	"	30	11.08	11.08	2.54	3.52	1.38	1.16	12.28	12.00	10.75
"	Diss. Bone and Potash	40	8.12	8.12	2.63	3.72	1.53	2.00	12.28	12.00	10.75
"	"	30	6.28	6.28	2.63	3.83	2.11	1.64	12.45	12.00	10.34

TABLE III—*Continued.*

NAME, AND ADDRESS OF MANUFACTURERS.		NAME OF BRAND.								
Agents', Number.	Soluble Phosphate Acid in Ommercial Sample.	Agents', Number.	Soluble Phosphate Acid in Inspected Sample.							
Piedmont Mt Airy M'g Co., Balt., Md.	Piedmont Dis. B. Phos. P. G. Piedmont P. Raw Bone Mix.	43 2.71 4.16 3.78 20 4.81 1.11 4.62 30 4.13 4.34 4.40 8 4.75 4.34 4.66	7.96 3.04 2.96 3.64 3.44 3.16 11.11 11.58 3.90 Fine Ground Bone.....	10.49 10.23 4.86 12.00 ... 11.96 ... 9.35 7.10 2.94	1.37 8.64 8.12 3.86 12.37 12.77 2.74 11.27 9.43 2.95 11.51 9.42	10.92 7.28 1.15 10.08	1.46 1.46 1.46 1.62 1.62 1.62 2.32 2.32 2.32 1.15 1.15 1.15	1.42 1.46 1.46 1.62 1.62 1.62 2.32 2.32 2.32 1.15 1.15 1.15	15.00 18.00 20.25 16.25	.00 .25 .25 .00
Powell Fert. & Chem. Co., Balt., Md.	Bone and Potash Fert..... Soluble Bone Phosphate.....	10 5.37 .97 4.72 10 13.09 3.84 1.95	7.88 1.92 8.40 1.37	2.61 12.01 11.46 2.84 16.41 14.88	10.09 12.04	1.44 1.44 1.44 1.44	16.75 16.75 16.50 14.50	15.25 2.00	.150 .150	
Rasin Fert. Co., Baltimore, Md.	Raisins Acid Phosphate..... Bone and Potash..... Aman't'd Superphos..... Empire Guano.....	* 46 .. * 46 .. * 46 .. * 46 ..	10.49 10.23 4.86 12.00 ... 11.96 ... 9.35 7.10 2.94	1.37 8.64 8.12 3.63 3.43 3.16 3.03 3.02 2.95 4.39 4.29 4.39	1.00 16.16 16.02 15.26 15.26 15.26 16.56 16.56 16.56 13.72 12.39 11.49	15.02 15.53 14.99 11.49	1.37 1.37 1.37 1.42 1.42 1.42 1.42 1.42 1.42 1.36 1.36 1.36	16.25 16.25 16.25 16.25 16.25 16.25 16.25 16.25 16.25 18.50 18.50 18.50	16.00 16.00 16.50 18.50	—.25 —.25 —.25 —.25
Scientific Fert. Co., Pittsburgh, Pa.	Scientific Potato Fert..... Bone and Meat..... Corn and Grain Fert.....	* 4.20 .. * 3.40 .. * 3.40 ..	2.17 .. 2.38 .. 13.04 ..	9.75 .. 13.04 .. 13.15 ..	6.37 .. 3.48 .. 1.88 ..	2.73 .. 2.44 .. 1.08 ..	6.46 .. 2.24 .. 2.24 ..	32.50 .. 23.25 .. 23.25 ..	.... .... ....	
Shingluff & Co., Baltimore, Md.	Universal Guano..... Dissolved South Carolina.....	35 10.87 6.98 2.59 24 13.76 10.98 1.70	3.29 1.07 2.46 11.45 15.59 15.46 15.16	12.73 13.48 10.27 15.59 15.46 15.16	1.08 1.08	2.42 2.42 2.42	2.42 2.42 2.42	22.50 22.50 22.50	—.75 —.75 —.75	

TABLE III—Continued.

The following is a list of the Agents from whom were obtained the samples in the above.

1.	Babb; W. W.	Keyser.
2.	Blue, F. B.	Grafton.
3.	Brand, W. H.	Morgantown.
4.	Beard, J. M. & Bro.	Ronceverte.
5.	Booth & Sinsel,	Belington.
6.	Brinkman, Geo.,	Grafton.
7.	Chisler, J. J.	Fairmont.
8.	Chrislip, A. G.	Philippi.
9.	Cole, W. L.	Clarksburg.
10.	Carskadon, Geo.	Keyser.
11.	David, J. H.	West Union.
12.	Day & Lyon.	Keyser.
13.	Dowler & Dowler.	Wheeling.
14.	Cudley, W. R.	Wheeling.
15.	Floyd, R. R.	Mannington.
16.	Frederick, G. S.	Keyser.
17.	Getzendanner, Dan'l.	Carneysville.
18.	Harner, J. L.	Morgantown.
19.	Holland, C. H.	Triune.
20.	Hutchinson & Jacobs.	Little Falls.
21.	Hawker, Jas	Mannington.
22.	Hite, Isaac.	Morgantown.
23.	Haglet, Chas.	Charleston.
24.	Henshaw & Leechlader	Martinsburg.
25.	Holberry & Burgess	Philippi.
26.	Howell, John	Belington.
27.	Howell, John	Philippi.
28.	Hanley, V.T.	W. Grafton.
29.	Harrison & Hicks	Cameron.
30.	Kinsey, E. S.	Uffington.
31.	Leavit, G. E.	Parkersburg.
32.	Leggett,	Wellsburg.
33.	Lowndes, R. T.	Clarksburg.
34.	Miller, David	Wellsburg.
35.	Myer, Chas. & Son,	Terra Alta.
36.	Miller, S. M. & Son,	Terra Alta.
37.	Miller, J. M. & Bro.	Ronceverte.
37½.	Offut & Laikin,	Terra Alta.
38.	Pugh, Silas,	Morgantown.
39.	Phillips, Cicero	Belington.
40.	Rigg, J. M. & Son.	Terra Alta.
41.	Rabe, J. & Sons.	Morgantown.
42.	Robinson, Jas.	Littleton.
43.	Sellers, W. R.	Glover's Gap.
44.	Sill, W. T.	Pennsboro.
45.	Stout, W. S.	Harrisville.

46.	Swisher, J. F.	- - - - -	Fairmont.
47.	Smith, W. H., Hdw. Co.	- - - - -	Parkersburg.
48.	Sencindriver & Stewart.	- - - - -	Martinsburg.
49.	Shurtliff, W. S.	- - - - -	Belington.
50.	Tyree, S. F.	- - - - -	Ronceverte.
51.	Teter, T. B.	- - - - -	Belington.
52.	Wilson, B. W.	- - - - -	Pennsboro.
53.	Woodyard, J. L.	- - - - -	Pruntytown.
54.	Weaver, J. F.	- - - - -	Morgantown.
55.	Umstatt & Wilson,	- - - - -	Burlington.

## AN ACT CONCERNING COMMERCIAL FERTILIZERS.

STATE OF WEST VIRGINIA.

## CHAPTER LXXII.

AN ACT concerning Commercial Fertilizers, and repealing chapter twenty-five of the acts of the Legislature of West Virginia of 1879.

[Passed March 6, 1891.]

Be it enacted by the Legislature of West Virginia:

1. Every person or company who shall sell, offer or expose for sale in this State, any commercial fertilizer or manure, shall affix conspicuously to every package thereof a plainly printed statement, clearly and truly certifying the number of net pounds of fertilizer in the package, the name, brand or trademark under which the fertilizer is sold, the name and address of the manufacturer, the place of manufacturer, and a chemical analysis, stating the percentage of nitrogen or its equivalent in ammonia, of potash soluble in distilled water, and of phosphoric acid in available form, soluble in distilled water, and reverted, as well as the total phosphoric acid. In the case of those fertilizers which consist of other cheaper materials, said labels shall give a correct general statement of the composition and ingredients of the elements relied upon, contained in the fertilizer which it accompanies. If any such fertilizer be sold in bulk, such printed statement shall accompany and go with every lot and parcel sold, offered or exposed for sale.

2. Before any commercial fertilizer is sold, offered or exposed for sale in this State, the manufacturer, importer or party who causes it to be sold, exposed or offered for sale, shall file with the Director of the West Virginia Agricultural Experiment Station a certified copy of the statement named in section one of this Act, and shall also deposit with said Director, a sealed glass jar or bottle, or sealed tin can containing not less than one pound of fertilizer named and described in said statement, accompanied by an affidavit that it is a fair average sample thereof. The making of any affidavit required by this chapter falsely shall be purjury.

3. The manufacturer, importer, agent or seller of any brand of commercial fertilizer or material used for manurial purposes, shall pay for each brand at the time he files the statement required in section one of this Act, an analysis fee of ten dollars for each of the fertilizer ingredients claimed to exist in each and every brand of fertilizer which he sells, offers or exposes for sale within this State, provided that whenever the manufacturer or importer shall have paid the analysis fee herein required, for any particular brand of fertilizer, no agent or seller shall be required to pay any other or further analysis fee for said brand.

4. The analysis fee required to be paid by section three of this Act, shall be paid to the Treasurer of the West Virginia University for the use of the Agricultural Experiment Station, and the party making such payment shall take from said Treasurer, triplicate receipts therefor, one of which he shall retain, and the others shall be deposited, one with the Director of the Agricultural Experiment Station, and the other with the Secretary of the Board of Regents of the West Virginia University, and by them filed and preserved in their respective offices.

5. Immediately after the filing of the receipt aforesaid with the Director of the Agricultural Experiment Station, said Director shall issue a certificate to the party making such payment, stating the amount of fees paid and the name, brand of

trade-mark under which the fertilizer is sold, the name and address of the manufacturer or importer, the place of manufacturer and the name and place of business of the dealer, and chemical analysis as set forth in the statement by section one of this Act, and that the applicant for said certificate is authorized to sell said fertilizer within the State of West Virginia for the period of one year from the 1st day of January to the 31st day of December, inclusive. Said certificate may be issued at any time for and during the current year, and may be issued during the month of December for the year commencing on the first day of January thereafter.

6. It shall be the duty of the Director of the West Virginia Agricultural Experiment Station to make or cause to be made a chemical analysis of every sample of commercial fertilizer so furnished him, and he shall print the result of such analysis in the form of a label or tag. Such printed label or tag shall set forth the name of the manufacturer, the place of manufacture, the brand of the fertilizer, and the essential ingredients contained in said fertilizer, expressed in terms and manner approved by the Director, together with a certificate from the Director setting forth that said analysis is a true and complete analysis of the sample furnished him of such brand of fertilizer of the ingredients claimed to be contained therein. And he shall also place upon each label or tag the money value per ton of such fertilizer, computed from its composition as he may determine. The Director shall furnish such labels or tags in quantities of one hundred or multiple thereof, to any person or company complying with this act, and desiring to sell, offer or expose for sale, any commercial fertilizer in this State, and shall receive therefor the sum of fifty cents for every one hundred so delivered, and shall without delay pay the same to the Treasurer of the West Virginia University for the use of the Agricultural Experiment Station, and take duplicate receipts therefor, one of which he shall retain and the other he shall deliver to the Secretary of the Board of Regents, who shall file and preserve the same in his office.

7. The Board of Regents of the West Virginia University shall expend the money received under the provisions of this Act in meeting the legitimate expenses of the Station, in making analysis of fertilizers, in experimental tests of same, and in such other experimental work and purchases as shall inure to the benefit of the farmers of this State, and shall include in their annual report a statement of the receipts and disbursements thereof.

8. The Director of said Experiment Station is hereby authorized in person or by deputy to take samples for analysis from any lot or from any commercial fertilizer which may be in the possession of any dealer in the State. And he is hereby authorized to prescribe and enforce such rules and regulations as he may deem necessary to carry fully into effect the true intent and meaning of this act; and any agriculturist, a purchaser of any commercial fertilizer in this State, may take a sample of the same under the rules and regulations of the Director of the said Experiment Station, or forward the same to the Experiment Station for analysis, and if the Director has reasons to believe that the manufacturer of, or dealer in, said fertilizer has made any false or fraudulent representation in regard to said fertilizer, he shall cause the said sample to be analyzed free of charge, and certify the same to the person forwarding the sample.

9. Said Director shall also publish, by bulletin, the brand name and location of the manufacturer, and chemical analysis of every fertilizer analyzed or caused to be analyzed by him. Said last publication to be made, if practicable, before the time at which said fertilizer is to be applied to the soil.

10. Any manufacturer or vender of any chemical fertilizer who shall sell, or offer or expose for sale, any commercial fertilizer without having previously complied with the provisions of this act herein before set forth, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than fifty nor more than five hundred dollars.

11. Any company, firm or person who shall wilfully remove from or deface or change any label, or tag, or brand affixed to

any package of fertilizer under the provisions of this act, before such fertilizer has been used for manurial purposes, or who shall sell such fertilizer without such label or tag being affixed thereto at the time of the sale, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than ten nor more than fifty dollars for each offense.

12. Any company, firm or person, who shall remove from or cause to be removed from any package of commercial fertilizer any statement, label or tag affixed thereto under the provisions of this Act, and affix or cause the same to be affixed to any other package of commercial fertilizer shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than ten nor more than fifty dollars for each offense.

13. Any company, firm or person violating any of the provisions of this Act, or who fails to comply with the requirements of this Act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall, when no other penalty is prescribed, be fined not less than ten nor more than one hundred dollars for each offense. But this act shall not be construed to apply to any one who manufacturers fertilizers for his own use and not for sale.

14. The Director of said Experiment Station shall report to the prosecuting attorney of the county wherein the offense was committed, all violations of the provisions of this act, and failure to comply therewith, and a copy of any statement, label or tag required to be filed with said Director, or prepared by him, and any analysis made or caused to be made by him, when duly certified by said Director, shall be received in evidence in any prosecution or a suit for any violations of the provisions of this Act.

15. That chapter 25 of the Acts of the Legislature of West Virginia, passed on the 4th day of March, 1879, entitled "An act to protect the purchasers of fertilizers in this State," be and the same is hereby repealed.



